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Engineering
Environmental
Coatings and Resins Group

August 26, 1994

Mr. Donald Graham
U.S. EPA, Region II
Removal Action Branch
2890 Woodbridge Avenue
Edison, New Jersey 08837

Sampling and Analysis Program for Stones in the Former Support Area
PPG Walton's Farm Site
Delran, New Jersey

Dear Mr. Graham:

This letter is prepared to address the sampling and analysis program for stones that currently are present in the former support area as a result of the removal action at the Walton's Farm site in Delran, New Jersey. The program is designed to collect representative samples from the stones and to analyze the physical and chemical characteristics of the stones. With agency's approval, the stones will be managed in a manner consistent with their characteristics. Details of the stone sampling and analysis program are presented below.

BACKGROUND AND OBJECTIVES

The Walton's Farm site was contaminated with pesticides, i.e., primarily DDT and its metabolic compounds. A removal action, including excavation of the former disposal area and decontamination of the former support area, was conducted by IT Corporation (IT) and Chemical Waste Management, Inc. (CWM) under contracts from PPG Industries, Inc. (PPG). The excavation and decontamination activities were performed in several phases between March 1992 and April 1993 under agency oversight in accordance with an approved Removal Action Work Plan. Upon completion of excavation and decontamination, verification sampling and confirmation analysis activities were performed to verify that the removal action criteria was accomplished. Based on results from the verification sampling and confirmation analysis, all areas of the Walton's Farm site detected concentrations of the targeted pesticides at levels significantly below 10 parts per million (ppm), i.e., the removal action criteria. Therefore, the removal action is complete and the site is considered clean.

Site restoration has been performed in the former disposal area where excavation occurred. Portions of the former support area and the temporary access roadway are still covered with stones that were brought in from off-site sources. It is estimated that approximately 2,000 tons of stones still remain on site, of which the majority is on the temporary access roadway. From the purchasing records and practical uses of them, the stones have sizes equal to or larger than No. 57 aggregates as designated by the American Association of State Highway Transportation Officials (AASHTO).

The fine aggregates that were present in the former support area were sampled and analyzed after the decontamination activities on April 30, 1993. Insignificant levels of residual pesticides were detected in a few samples of the fine aggregates, as reported in an IT's letter, dated May 18, 1993, to the U.S. EPA. From the description of the previous verification sampling and analysis in the former support area, it is believed that the reported pesticide concentrations represent the pesticides only in the fine aggregates, primarily consisting of sandy and loamy materials. While the fine aggregates may contain residual pesticides at locations adjacent to the former stockpile area, the stones that were brought in from off-site sources and placed in the former support area, as well as on the temporary access roadway, may not be contaminated. The pesticide concentrations in the size fraction that was analyzed in the previous verification sampling and analysis may not adequately represent the pesticides in the stones to be removed.

METHODOLOGY AND PROCEDURES FOR SAMPLING AND ANALYSIS

Several physical and chemical characteristics of the stones will be determined in the field and laboratory. Size distribution of the stones will be obtained in the field by sieve analysis. Laboratory analysis will be used to determine the concentrations of DDT, DDD, and DDE in the stones. Details for field sampling and laboratory analyses are provided below.

Size Distribution of Stones

According to the purchasing records, the stones are primarily composed of AASHTO No.1 and No.24 aggregates. Nominal sizes for No.1 and No.24 stones are 3½" to 1½" and 2½ to ¾", respectively. Particle sizes for gravel and sand, by AASHTO definition, are 3" to No.10 sieve (openings = 2 mm) and No.10 sieve to No.200 sieve (openings = 0.075 mm). Soil grain with size smaller than No.200 sieve is considered a silt/clay material. Therefore, major sizes for the aggregates include 3", 1½", ¾", No.10, and No.200. A small amount (100 tons) of No.57 stones (nominal size 1" to No.4 sieve) were also purchased and placed in the access roadway and former support area as top course of stone pavement. Therefore, the following sieves are proposed to be utilized in determination of size distribution (or composition) of the stones during the field sampling:

Sieves							
3"	1½"	¾"	3/8"	No.4	No.10	No.200	Bottom

Five representative locations (two on the access road and three inside the fence gate) are selected, for sieve analysis of the stones. These locations include WF-Stone-02, WF-Stone-03, WF-Stone-06, WF-Stone-09, and WF-Stone-10, as shown on the attached figure. At each location the field activities include:

- Identify the pre-selected sample locations as shown on the map and note on individual field log for distance to the existing reference points or landmarks, such as fence gate, fence post, monitoring well, etc.
- Use a clean shovel to dig a shovel-size hole and place the materials in a 5-gallon pail for sieve analysis (Note: the thickness of stone pavement is believed to be approximately 6 inches)
- Inspect the side wall of the hole (or note during digging) and describe the gradation of stone pavement (e.g., one or multiple layers through the pavement, approximate sizes of stone in the layers, the actual depth to the bottom, etc.)
- Inspect and note the conditions of the bottom (e.g., the nature of the bottom material, any geotextile/liner exists at the bottom, etc.)
- Take a closeup photograph of the hole and note on the field log for the number sequence of the frame
- Perform sieve analysis at each sample location, including weigh the empty sieves, run the materials through the selected sieves, weigh the sieves again to get the weight of materials retained on the sieves, and record the data on the field log (Note: due to the height of the sieves, it may be necessary to run the materials through the sieves in two steps)
- Upon completion of sieve analysis, collect the stone sample for chemical analysis and return the excess materials to the hole and compact by foot
- Prepare sample collection logs, chain of custody forms, and field logs as required
- Continue onto the next sample location

Sampling and Analysis of Stones for Pesticides

In order to estimate the mass concentration representative of the stones to be removed, the following sampling and analysis procedures are proposed. A total of ten stone samples will be collected from the former support area and access roadway as shown in the attached figure.

The collected samples will be a core section of roughly 1 foot in diameter and be visually consistent with the size distribution of stones in the surrounding area. The stone samples will be screened, as described in the size distribution analysis, and the fractions that are larger than No. 4 sieve will be retained for laboratory analysis of DDT, DDE, and DDD. The fine aggregates, smaller than No. 4 sieve or 4.75 millimeter, will remain at the site as a result of the raking process during stone removal.

Eight samples will be collected in the former support area using a triangular pattern and an approximately 75-foot spacing. This will provide for an 80 percent chance of detecting circular areas of elevated concentration of approximately 35 feet in diameter (Gilbert, 1984 and U.S. EPA, 1989). These samples from the former support area will be collected at the approximate locations identified by distances from the origin designated at the western end of the remaining fence.

Sample Identification	X-Coordinate Feet	Y-Coordinate Feet
WF-Stone-01	300	25
WF-Stone-02	300	125
WF-Stone-03	225	75
WF-Stone-04	150	25
WF-Stone-05	150	100
WF-Stone-06	75	75
WF-Stone-07	0	25
WF-Stone-08	0	100

Two additional samples will be collected from the center line of the access roadway at the following locations:

- Sample WF-Stone-09, 100 feet from the gate
- Sample WF-Stone-10, 200 feet from the gate

After the size distribution analysis, the desired fractions of stone sample will be recombined for submittal to the laboratory for analysis of DDT, DDE, and DDD. In order to obtain the representative total concentrations of the targeted pesticides, the entire sample will be weighed and extracted without crushing. One or more of aliquots of the resulting extract will be analyzed by GC/ECD for total concentration of the targeted pesticides. The total concentration will be calculated and reported based upon the total weight of the sample submitted.

HEALTH AND SAFETY CONSIDERATIONS

Although the site is considered clean, the stones may have residual pesticides at levels in parts per billion (ppb) up to a few parts per million (ppm). Due to the potential site hazard involved, IT's health and safety policy requires an addendum to the existing site-specific Health and Safety Plan be prepared for the planned site activities. The addendum will address the potential site hazard, required precaution and protective equipment to work on the site, and personnel and equipment decontamination procedures. The site is located in a residential area, but currently has no working utilities on site. The field personnel must bring their own decon water and drinking fluids. Given the nature of the field activities, modified Level C or Level D health and safety gear will be appropriate for the proposed site activities. As always, the field personnel will avoid any physical contact and/or inhalation of the materials on site.

ADDITIONAL ACTION

As part of the final site restoration efforts, PPG intents to mechanically rake the stones from the areas and beneficially reuse the stones at on-site and off-site locations. Upon evaluation of the physical and chemical characteristics of the stones, PPG will seek approvals from the U.S. EPA for disposition of the stones that will maximize the usefulness of the stones as well as protecting human and the environment. An action plan concerning disposition of the stones will be submitted to the U.S. EPA as soon as practical.

Your concurrence to this sampling and analysis program for the stones is hereby requested.

If you need additional information, please do not hesitate to contact me at (412) 492-5532.

Sincerely,

Mark E. Terril

Mark E. Terril, P.E.
Manager, Site Remediation

cc: V. Ou - IT Corp.

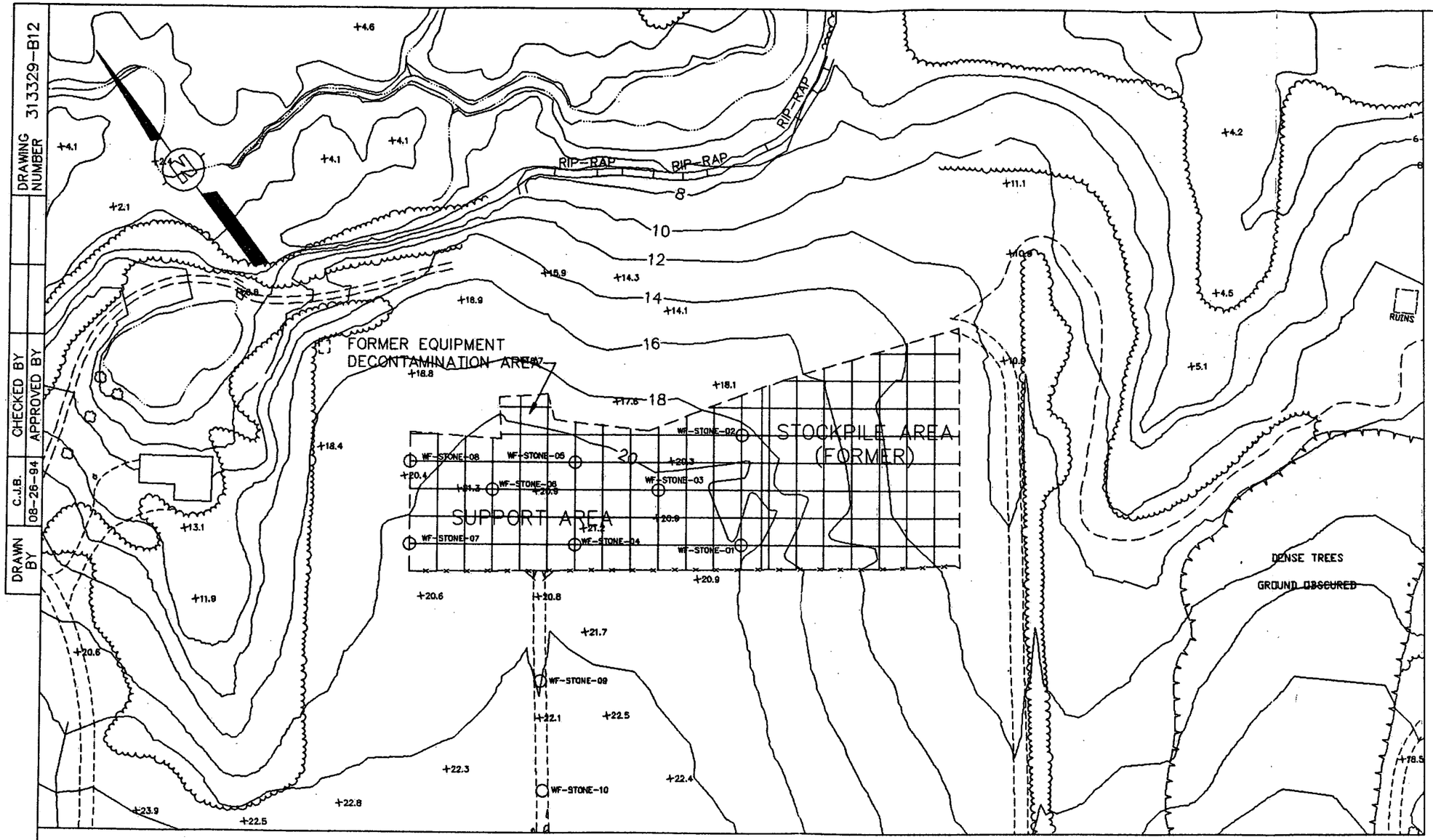
① GEOTEXTILE DISPOSAL ??

② CONCENTRATION IN RELATION TO TOTAL WT. OF STONE ??

③ DETECTION LIMIT

DRAWING NUMBER 313329-B12

DRAWN BY	C.J.B.	CHECKED BY	
	08-26-94	APPROVED BY	



LEGEND:

- REMOVED FENCE
- EXISTING FENCE
- WF-STONE-06 STONE SAMPLING LOCATION

SCALE

0 100 200 FEET

SUPPORT AREA
STONE SAMPLING PLAN

PREPARED FOR

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA

INTERNATIONAL TECHNOLOGY CORPORATION

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